

ABSTRACT

A CPP magnetic sensor is disclosed with a ferromagnetic layer that extends in a first direction a first distance; a nonferromagnetic spacer layer that adjoins the ferromagnetic layer and extends in the first direction a second distance that is substantially equal to the first distance; and a ferromagnetic structure that is separated from the ferromagnetic layer by the spacer layer, the ferromagnetic structure having a first section that extends in the first direction a third distance that is substantially equal to the second distance, the ferromagnetic structure having a second section that is disposed further than the first section from the spacer layer, the second section extending at least twice as far as the first section in the first direction. The ferromagnetic structure can be used for in-stack bias or pinning of free or pinned layers, respectively, and side shields can be provided for high areal density.